REMEDIAL SITE ASSESSMENT DECISION – EPA Region 05

Site Name: ESSEX WIRE - ROCKFORD

Alias(es): PRIMECAST

City: ROCKFORD **County or Parish:** WINNEBAGO **State:** IL

Refer to Report Dated: 01/28/2015 **EPA ID:** ILP000509213

Report Developed By: STATE **State ID:**

Report Type: Site Inspection (00X) #001

- ☐ **1. Further Remedial Site Assessment Under CERCLA (Superfund) is not required because:**
- ☑ **2. Further Assessment Needed Under CERCLA.**
  Higher priority for further assessment
- ☐ **3. Remedial study/cleanup needed.**

Decision/Rationale:

SI results (elevated levels of SVOCs and inorganics in surface soil) indicate further investigation of site is warranted.

Decision/Rationale (Continued):

Site Decision Made By: Patrick Hamblin, NPL Coordinator

Signature: David M. Mauer for PH

Date: 02/10/2015

LPC# 201 030 0060 - Winnebago County
Essex Wire - Rockford - Rockford
ILP 000 509 213
SF/HRS

CERCLA Site Investigation

Prepared by:
Office of Site Evaluation
Division of Remediation Management
Bureau of Land

SIGNATURE PAGE

Title: CERCLA Site Reassessment for Essex Wire - Rockford

Preparer: Lance L. Range, Project Manager, Office of Site Evaluation, Illinois Environmental Protection Agency

1/28/15

Signature Date

Reviewer: Bruce Everetts, Office Manager, Office of Site Evaluation, Illinois Environmental Protection Agency

1/28/15

Signature Date

Approval: Patrick Hamblin, Remedial Project Manager, United States Environmental Protection Agency, Region 5

Signature Date

The approval signatures on this page indicate that this document has been authorized for information release to the public through appropriate channels. No other forms or signatures are required to document this information release.

CERCLA

SITE INSPECTION

For:

Essex Wire - Rockford

ILP 000 509 213

ROCKFORD, ILLINOIS

PREPARED BY:

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

BUREAU OF LAND

OFFICE OF SITE EVALUATION

May 16, 2014

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1.0 SITE BACKGROUND

1.1 Site Introduction

On February 26, 2013, the Illinois Environmental Protection Agency (Illinois EPA) Office of Site Evaluation (OSE) was tasked by the United States Environmental Protection Agency (U.S.EPA) Region V to conduct a Site Inspection (SI) at the Essex Wire - Rockford (a.k.a., Rockford Ordinance Site) site in Rockford, Winnebago County, Illinois. The site is located at 2816 North Main Street, Rockford, Illinois. The SI is performed under the authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) commonly known as Superfund.

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR Part 300) requires that a Preliminary Assessment be performed on all sites entered into the Comprehensive Environmental Response, Compensation, and Liability System (CERCLIS), U.S. EPA's inventory of hazardous waste sites.

The primary objective of a Site Inspection is to gather necessary information needed to evaluate the extent that a site presents a threat to human health and/or the environment. This is collecting and analyzing wastes and environmental media samples to determine whether hazardous substances are present at the site and are migrating to the surrounding environment. At the conclusion of the Site Inspection, a determination will be made whether the site qualifies for additional evaluation under Superfund or should be dropped from further Superfund

consideration. Additionally, the Site Inspection supports removal and enforcement actions and collects data to support further Superfund or other response actions.

The Site Inspection is not intended to be a detailed evaluation of contamination or risk assessment. If the evaluation of the site indicates that the site qualifies for additional Superfund evaluation, an Expanded Site Inspection may be conducted. In some cases an Expanded Site Inspection will be conducted to address critical hypotheses or assumptions that were not completely supported during the SI. The SI is performed under the authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) commonly known as Superfund.

The Essex Wire consists of approximately 14.01 acres with 12 buildings that are connected. The site is located at latitude 41 degrees, 19 minutes, 15 seconds and at a longitude of 89 degrees, 5 minutes and 39 seconds in Winnebago County in the city of Rockford, Illinois. The buildings have over 380,000 square feet of floor space. There is also a modern two-story administration building. The Essex Wire - Rockford site was placed on CERCLIS on September 30, 2004 with a Pre-CERCLIS report submitted at the same time. A Preliminary Assessment was completed for the Essex Wire facility on July 3, 2012. This site was referred to OSE in 2004 by the Illinois EPA's Federal Facilities Unit (FFU) in regards to the site being utilized as a Department of Defense Ordinance facility and by the Essex Group Inc. Company. Production processes at the site included the manufacture and storage of shell casings, wire and wire related products.

2.0 SITE BACKGROUND

2.1 Site Description

The Essex Wire - Rockford site is located at 2816 North Main Street in Rockford, Illinois in Winnebago County (Figure 2) and was built in 1939. The site is specifically located at Township 44 North, Range 1 East, on the east side of Section 11. The site is flat and well drained and is supplied with city water and sewer. The site has a frontage on the west side of North Main Street of 700 feet, a depth on its north lot line of 540.73 feet, a depth on its south lot line of 1203.61 feet, and a rear westerly diagonal frontage on the Chicago, Milwaukee, St. Paul & Pacific Railroad of 967.53 feet. The site is currently fenced.

There are two sources of water supplying the facility. The City of Rockford supplies water by a 12" water line for the fire emergency sprinkler system. The water for normal usage comes from a deep well located in the boiler room. During the Department of Defense operations, the normal usage well was pumped at the rate of 400 gallons per minute.

Operations over the years have included the manufacture of ammunition shell casings, wire and product storage. It is probable that chlorinated solvents were used in the production of the shell casings to clean machines, machine parts and floors. At the present time, the site is being utilized as a semi-truck driver training area, equipment storage for Ingersoll Manufacturing, and equipment storage/truck storage for a landscaping company.

Operations and facilities surrounding the site include the Rockford Country Club golf course and residential homes to the east. To the west is the Chicago, Milwaukee, St. Paul & Pacific Railroad and beyond the tracks are residential homes. To the north of the site are commercial and residential areas. To the south are commercial properties (a vacant grocery store) along with two schools (Head Start North and Spectrum School). There is a residential neighborhood just to the west of the facility. Residential homes are located approximately 140 feet from the facility (Figure 3).

The City of Rockford obtains drinking water from 32 municipal wells. There are 62 community supply wells located within four miles of the facility according to the Illinois EPA's Surface Water Assessment Program Assessment Tool. Four wells are located within one mile of the site. One well is located to the north of the site (0.64 mile), another well is located to the southwest of the site (0.50 mile), and two wells are located to the southeast of the site (1 mile). At the time of this investigation, neither well has been impacted.

2.2 Site History

The buildings were constructed in 1939 as part of the Rockford Ordnance Plant that manufactured 155 mm shell casings. The facility operated from 1948 to 1956 and subsequently vacant until 1959 when the site was offered for government sale. The sealed bid opening on this property was not successful. After ongoing procedures to find a buyer of the property, Essex Group Corporation proposed an offer on June 15, 1960. United Technologies Corporation is the parent company of the Essex Group Corporation. Essex utilized the site for wire manufacture and storage. Essex closed the Rockford facility in 2003.

Essex Group sold the property to Hendricks Development Group, but the exact date of purchase is unknown at this time.

Essex was responsible for copper and aluminum wire drawing and coating. Two major operations were conducted at the plant. The first was the reduction of the diameter of both the aluminum and copper wire. In this process, synthetic oil for the copper and natural oil for the aluminum was both used as a lubricating agent and as a coolant. The second operation involved coating the wire several times with enamel. These wires were coated and baked with one of a number of nylon or polyester enamel coatings.

2.3 Previous Investigations

2.3.1 1983 Spill Incident

This incident involved the release of one gallon of PCB liquid from a transformer on September 15, 1983. A transformer ruptured, resulting in a release to the concrete pad and adjacent soil. No surface water impact was reported. The concrete pad was cleaned and the soil was excavated. It is reported that 15 transformers were located at the Essex property. These transformers have been removed. According to the 1990 RCRA Inspection Report, the PCB-contaminated soils were excavated and disposed of off-site in 1989.

2.3.2 RCRA Inspection (July 1989)

A Resource Conservation and Recovery Act (RCRA) closure certification inspection was conducted at Essex on July 13, 1989 by Illinois EPA. In conjunction with this inspection, a more thorough inspection was conducted based on a complaint that had been received.

The complaint centered around an underground storage tank that supposedly held hazardous waste and which was located on the northwest side of the property. In addition, the complaint alleged that dumping of enamel waste had occurred on the west side of the plant near a set of railroad tracks. It was discovered upon inspection that two 20,000-gallon underground storage tanks did contain a spent dip solution. There exists an area to the east of the mentioned tanks where oil from a compressor has been released outside of the facility and has penetrated into the soil next to the building. A third area existed near the west side of the facility near a set of railroad tracks. It appeared that waste had been spilled or dumped in this area. There was a second complaint implicating additional underground storage tanks, and a third complaint suggesting the improper disposal of enamel paints, solvents, etc. which were dumped on the ground west of the main building near a metal shed outbuilding for a number of years.

2.3.4 Tank Removal (1989)

There was a tank removal conducted in 1989 by Heritage Remediation. This removal consisted of cleaning, degassing, removal and disposal of two 20,000 gallon tanks containing copper mud, and one 800 gallon gasoline underground storage tank. When compared to the 1989 Illinois EPA's Tiered Assessment to Corrective Action Objectives criteria, analysis of samples collected during this event for volatile and semi-volatile constituents and selected metals analysis did not exhibit significant concentrations of contaminants above 0.025 ppm for benzene or 16.025 ppm for benzene, ethyl benzene, toluene and xylene (BTEX).

2.3.5 RCRA Inspection (December 1990)

A RCRA inspection was conducted at the site on December 12, 1990. Four waste streams were generated during the manufacture of the insulated wire: 1) drawing fluid (coolant and lubricant) for copper wire which was composed of oil diluted with water, 2) drawing fluid for aluminum wire, which was oil alone (no water added), 3) liquid enamel waste that was collected during changeovers and mixes, and 4) solid enamel waste which was collected on filters, rags and mop heads. The enamel wastes, solid and liquid, contain phenol, xylene and cresylic acid. Methanol migrated into the waste stream by way of a hand and tool cleaner. The two enamel waste streams were disposed of by incineration.

The waste drawing fluids for the copper and aluminum wire were disposed of in different ways. The aluminum drawing fluid contained no water. The oil portion could not be separated from the aluminum fines because of their similar densities. Rineco Chemical Industries in Benton, Arkansas incinerated it for its high British Thermal Unit (BTU) value.

The copper fines (copper mud) settled out of the copper drawing fluid and were reclaimed by a company in Montana. The oil and water mixture was pumped into a storage tank and then into barrels where it was stored until it could be put into an evaporator. The evaporator exhaust was permitted by Air Pollution Control (APC), Pin Number (PN) 78020056. The sludge that remained after evaporating was nonhazardous by Extraction Procedure (E.P.) Toxicity and was shipped under manifest to Heritage in Lemont, Illinois. In addition to the copper drawing fluid, the evaporator received three other waste streams: 1) mop water from spills in the drawing mill, 2) drawing fluid mixed with water from a leaking deionized water tank, which was pumped out of the basement and 3) compressor blow-down. In the past, the copper and aluminum waste drawing fluids had been combined.

2.3.6 IESDA Incident Report 912562 (September/October 1991)

On September 10, 1991 a spill occurred at the Essex site involving heating oil. An unknown amount of heating oil was released during the filling of an underground storage tank. The Illinois Emergency Services and Disaster Agency (IESDA) was contacted and an incident number was assigned (912562).

The IESDA Incident report refers to overfill and leaky fill lines at four 20,000-gallon underground storage tanks. The product contained in the tanks was #5 fuel oil, which was used to feed Kewanee Boilers. The tanks themselves showed no indication of leaks. These tanks were in service until 1990 and were registered with the State Fire Marshal. Upon removal (approximately in September 1991), the soil test results confirmed that contamination was not present, and the tank holes were backfilled (45-Day Report, October 1, 1991).

During the removal, five other tanks were removed; one 1,000-gallon gasoline tank, two 20,000 gallon #5 fuel oil tanks, and two quench oil tanks. These tanks were not in service before 1974, and were not registered. These tanks showed no indication of leaks at the tanks. These five tanks were considered closed. During the removal of the tanks, product was observed. The product was #5 fuel oil, which is inherently thick, whereby it remains generally in the area from which it accumulates. Upon excavation, an alternate filling system other than the man ways directly above the tanks was observed to be leaky. The fill system went into the south side of the building. The product lines went along a crawl way to the west side of the building. The alternate fill lines were heavily contaminated. An unknown amount of contaminated soil was removed. The contaminated soil did not appear to extend past the bottom of the tank. The contaminated soil was removed from the site by truck. A No Further Remediation letter was issued by the Illinois EPA's Site Remediation Program for the tanks only, on June 10, 1996.

2.3.7 Soil Boring Report (August 1993)

In response to unknown contamination surrounding the 1989 leaking underground storage tanks, a Soil Boring Report was conducted at the Essex site in August of 1993 by Environmental Contractors of Illinois (Aug 1993). Fishe Enterprises Inc. was hired to drill a total of six soil borings on August 18, 1991 for the Soil Boring Report. These six soil borings were drilled to determine the extent of contamination in the area surrounding the four 20,000 gallon underground storage tanks that were removed in 1991. Groundwater was encountered at approximately 27 feet. The borings were completed between 25 and 32 feet. Soil contamination was not evident by either sight or smell. Soil samples were collected at depths of 18-20 feet and 23-27 feet in each borehole. The samples were only analyzed for PNAs. Low

concentrations were detected in 4 of the 6 borings (0.011 ppm for benzo(b)fluoranthene (2B1), 0.097 ppm for indeno (1,2,3-c,d)pyrene and 0.087 ppm for benzo(g,h,i)perylene (3B2), 0.118 ppm for benzo(g,h,i)perylene, 0.016 ppm for benzo(a)pyrene (6B3) and 0.086 ppm for benzo(k)fluoranthene (8B4)) (Soil Boring Report by Environmental Contractors of Illinois, August 1993). The borings were conducted to determine the extent of contamination in the area surrounding four 20,000-gallon USTs containing #5 fuel oil that were removed October 16-24, 1991.

The six borings were drilled around the perimeter of the excavations to determine the horizontal extent of the contamination. Soil contamination was not evident by sight or smell in any of the boreholes.
Soil samples for the Soil Boring Report August 1993 were collected at depths of 18-20 feet and 23-25 feet in each of the boreholes. A sample was collected from the 25-27 foot range from another boring. The soil samples were field analyzed with a photoionization detector (PID). Elevated PID readings were not detected. Eleven soil samples were collected. The samples were collected at depths of 18-20 feet and 23-25 feet in each of the bore holes (B2-B6). A sample was collected at 25-27 feet from boring B1. These samples were taken to a laboratory for analysis of Poly Nuclear Aromatics (PNAs). BTEX was not analyzed for the Soil Boring Report (August 1993) based on low levels of these compounds detected from the samples collected from the excavation on the IESDA Incident Report 912562 (September/October 1991). Low concentrations of PNAs were detected in four of the six borings. (0.011 ppm for benzo(b)fluoranthene (2B1), 0.097 ppm for indeno (1,2,3-c,d)pyrene and 0.087 ppm for benzo(g,h,i)perylene (3B2), 0.118 ppm for benzo(g,h,i)perylene, 0.016 ppm for benzo(a)pyrene (6B3) and 0.086 ppm for benzo(k)fluoranthene (8B4)) (Soil Boring Report by Environmental Contractors of Illinois, August 1993). It appears that some of the contaminated soil remained as the report says “The majority of the contaminated soil has been removed” according to the IESDA Incident 912562 (October 1991).

The Soil Boring Report August 1993 by Environmental Contractors of Illinois for Essex Group Inc., describes that the Illinois EPA cleanup objectives have not been met. In an Illinois EPA memorandum dated March 22, 1996, a review of the cleanup objectives was conducted by Illinois EPA and the recommendation was given to allow the wastes to remain in place based on site specific cleanup objectives.

A No Further Remediation (NFR) letter was issued by the Illinois EPA’s Site Remediation Program on June 10, 1996 in relation to the underground storage tanks.

According to the Facility Registry System on the U.S.EPA website, an enforcement action was filed against the owners of the site in 1997. Air inspections were conducted and documented in 2002 and 2003.

2.3.8 Pre-CERCLIS Screening (August 2004)

On August 15, 2004, the Illinois EPA's OSE completed a Pre-CERCLIS Action Report for Essex Wire. The Pre-CERCLIS Action Report identified that the site was being managed and assessed by the Illinois EPA's FFU in conjunction with the Army Corps of Engineers to determine the liability of the Department of Defense. At the time of the investigation, it was determined to not add Essex Wire to CERCLIS due to this involvement and possible future cleanup activities.

In 2009, The FFU was informed that continued investigation activities by the U.S. Army Corps of Engineers under the Defense Environmental Restoration Program (DERP) of the Former Rockford Ordinance Plant will not occur because of Potentially Responsible Party issues. Due to this proposal, the FFU contacted OSE to complete the next step in the CERCLA process.

The area surrounding the site consists of mixed residential/commercial/industrial properties. Adjoining properties include a grocery store, residences, and a railroad right of way (Figures 2 and 3).

2.3.9 Preliminary Assessment (Plexus)

A Federal Facilities Preliminary Assessment was completed on June 30, 2005 by Plexus Scientific for the U.S. Army Corp of Engineers. This Preliminary Assessment determined that there were possible contaminants which could include solvents and oils.

2.3.10 Phase I and Phase II

A Phase I Assessment was conducted in June 2007. This Phase I Assessment determined that there were several recognized environmental conditions associated with the subject property. Additional investigation of these issues was recommended to further document soil and groundwater conditions.

In July 2007, a Phase II assessment was conducted at the Essex Wire facility. This site investigation consisted of twenty-one soil borings located throughout the property and the installation of three temporary groundwater monitoring wells. Borings were placed near areas of former Underground Storage Tanks (USTs), the flammable storage building, near the chip house, and along the south wall of the building. Monitoring wells were placed near the northwest corner of the building, near the east-

central border of the property, and near the southeast corner of the property. Borings were completed to varying depths dependent upon site conditions. Wells were set at approximately 34 feet below grade.

Soil samples collected during the Phase II assessment (MW-1, 20-24'; B-8, 0-4'; B-9, 4-8'; B-10, 4-8'; B-16, 8-12'; B-20, 0-4'; and MW-2, 24-28') were submitted to a laboratory for analysis of Base, Neutrals and Acids (BNAs), volatile organic compounds (VOCs), priority pollutant metals, and pH. Benzo(a)pyrene was detected at 0.102 ppm, above the most stringent cleanup objective (0.09 ppm) according to the IEPA's Tiered Approach to Corrective Action Objectives, in B-9, 4-8'. Benzo(a)pyrene was not detected above PNA Background Within Metropolitan Statistical Areas (2.1 ppm). Winnebago County, the location of the subject property, is considered a Metropolitan Statistical Area. Benzo(a)pyrene (0.968 ppm), benzo(b)fluoranthene (1.20 ppm), dibenzo(a,h)anthracene (.214 ppm), were detected in B-20, 0-4', at levels slightly above the most stringent Illinois EPA Tiered Assessment to Corrective Action Objectives cleanup objectives (benzo(a)pyrene (0.8 ppm), benzo(b)fluoranthene (0.9 ppm), dibenzo(a,h)anthracene (0.8 ppm)), but were below the background levels established for metropolitan statistical areas (benzo(a)pyrene (2.1 ppm), benzo(b)fluoranthene (2.1 ppm), dibenzo(a,h)anthracene (0.24 ppm. Visual contamination was present in the sample collected from B-16, 8-12'. These results were found to be of higher concentrations that the previous sampling conducted during the Soil Boring Report August 1993.

Groundwater was encountered at approximately 27 feet below grade in each of the three temporary monitoring wells. Groundwater samples were submitted to a laboratory for analysis of Base, Neutrals and Acids (BNAs), volatile organic compounds (VOCs), priority pollutant metals, and pH. Lead was found at 0.012-0.014 ppm; but these values do not constitute an observed release.

The Phase II identified two areas of soil contamination: near the paint room on the south side of the building and on the west side of the property. Visual contamination was present in the soil near the chip house, but unverified as contaminated due to dilution of the sample during analysis at the laboratory.

2.4 Regulatory Status

Based upon available file information, the Essex Wire - Rockford Site does appear to be subject to Resource Conservation and Recovery Act (RCRA) corrective action authorities. The site is listed in the Resource Conservation and Recovery Information System as a small quantity generator. As of May 2003, the plant is said to be in compliance.

Information currently available does not indicate that the site is under the authority of the Atomic Energy Act (AEA) or the Uranium Mine Tailings Action (UMTRCA).

The U.S. EPA/Office of Prevention, Pesticides and Toxic Substances maintains the Federal Insecticide Fungicide or Rodenticide Act (FIFRA) database. The subject facility is currently listed as a FIFRA site. The violation was "PCB - Failure to Maintain Records" and "PCB – Use".

3.0 Site Inspection Activities

3.1 Sampling Activities

For the Site Inspection, a site visit was conducted at the Essex Wire - Rockford Site facility on September 30, 2013. Upon arrival at the site, Illinois EPA staff was greeted by the maintenance supervisor and explained the scope of the investigation. The interior of the buildings appear to be in good shape without any signs of water damage. A majority of the interior floors are constructed of wooden blocks. These blocks could have the potential to have absorbed past contaminants. At the former chip house, located on the north side of the building, on the interior there is a large pipe which extends from the wall. There is a discharge of some type of waste from the area where the pipe enters into the building. Past environmental investigations have identified this as a type of heavy oil. No signs of contamination were present at the soil surface surrounding the building.

During the course of the investigation, thirteen soil samples and four ground water samples were collected for analysis. The soil samples were collected from various locations surrounding the building. Groundwater samples were collected from monitoring wells located on the south, west and north portions of the property. Soil sample placement was selected due to previous investigations which identified areas of concern. Groundwater samples were located in order to identify potential groundwater contamination based on groundwater flow. Samples collected during the investigation are depicted in Figures 5 and 6. Sample descriptions can be found in Table 1.

3.1.1 Soil Samples

Thirteen soil samples were collected from various locations on site. X101 was collected from the southeast corner of the property in the area of a former underground storage tank (UST). X102 and X103 was collected along the south side of the building. X104 was collected on the south side of the building near the intersection of buildings (where a new area of buildings begins). X106 was collected at the

southwest corner of the building near a loading dock area. X107 was collected on the north side of the small building which was utilized for storage. X108 was collected on the west side of the facility near a large garage door opening. X105 was collected in an area on the west side of the building near the area of ventilation for the hot forge shop. X109 was collected on the northern portion of the property and was to be utilized as a background sample. X110 –X113 were collected on the north side of the building in an area near the former chip house. Sample locations are depicted in Figure 5.

3.1.2 Groundwater Samples

Four groundwater samples were collected during the Site Investigation from three locations. G201 was collected near the southeast corner of the facility in the area of a former UST. G202 was collected on the south side of the facility. This location was chosen due to the suspected groundwater flow to the south. G203/G204 was collected from the northern portion of the property. This area was selected to represent background concentrations. Sample locations are depicted in Figure 6.

3.2 Analytical Results

Soil sample results indicated elevated levels of several inorganics. The soil samples described in this section exceeded three times the background concentration. Samples X108, X110 and X111 had elevated levels of antimony. X110 had 15.7 ppm of arsenic, 2.6 ppm of cadmium, 94800 ppm iron, 98 ppm lead and 6.4 ppm for silver. A table containing the inorganic and organic analysis of the soil samples can be found in Table 2 and 3.

Organic soil analysis revealed elevated levels of volatile organics. X111 revealed acetone, carbon disulfide, cis-1,2-Dichloroethene, 2-butanone, trichloroethene, tetrachloroethene, ethylbenzene, and xylene. X113 revealed acetone, 2-butanone, and tetrachloroethene.

Semi-volatile soil analysis revealed elevated levels of several semi-volatiles, most notably phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and benzo(g,h,i)perylene. Two samples (X102 and X103) revealed benzo(a)pyrene (31,000 and 33,000 ppb respectively) above the Removal Management Level (21,000 ppb). For a complete list of elevated levels of soil semi-volatiles can be found in Table 2.

The only groundwater organic exceedance was for trichloroethene and cis-1,2-dichloroethene in G202. Trichloroethene (15 parts per billion) exceeded the associated MCL value of 5 parts per billion. Inorganic groundwater data revealed elevated levels of chromium, manganese and nickel in G202 (Table 4).

3.3 Additional Data

X-Ray Fluorescence (XRF) data was collected to determine if inorganic contamination was present in the onsite soils near the smokestack and near the venting system located on the west side of the building. Two locations revealed elevated lead above 400 ppm at 448 and 854 ppm. The complete XRF data set can be found in Table 5. XRF sample locations can be found in Figure 7.

4.0 SITE SOURCES

This section includes descriptions of the various hazardous waste sources that have been identified at the Essex Wire site. The Hazard Ranking System defines a "source" as: "Any area where a hazardous substance has been stored, disposed or placed, plus those soils that have become contaminated from migration of hazardous substance." This does not include surface water or sediments below surface water that has become contaminated.

Information obtained during the Site Inspection identified that contaminated soil exists at the Essex Wire site. As additional information becomes available, the possibility exists that additional sources of contamination may exist.

Section 4.1 Contaminated Soil

Potential sources include contaminated soils, although the area of contamination is unknown, but greater than zero. Information collected from the soil analysis reveals elevated levels of organics and inorganics across most of the site. For this investigation, the source area for contaminated soil consists of soil located between samples X101 – X104, X105 and X110, which is approximately 230,400 square feet. Organic contamination appears to be more prevalent on the south side of the building, which includes X101-X104 (former area of UST). Lower organic contamination was found at X105, X110 and X111. Inorganic contamination (calcium, copper and magnesium) was found across the site, with elevated levels of arsenic, cadmium, iron, lead and silver at X110. It should be noted that visual contamination (oily with

petroleum smell) was present in the soil near the chip house located on the northern portion of the building, but analytical results did not reveal extremely elevated levels of organics.
Contaminants in the soil have the potential to impact future workers on the site and any other on-site individuals. Contaminants in the soil have the potential to leach into the underlying groundwater.

Section 4.2 Groundwater

Groundwater samples were submitted to a laboratory for analysis of Base, Neutrals and Acids (BNAs), volatile organic compounds (VOCs), priority pollutant metals, and pH. Only one sample (G202) revealed elevated levels of inorganics, including aluminum, chromium, manganese and nickel. G202 also revealed an elevated level of trichloroethene (15 ppb) which exceeds the associated MCL value of 5 ppb. It is unclear at the moment of the extent of the contamination in the groundwater.

5.0 PATHWAY DISCUSSIONS

CERCLA identifies three migration pathways and one exposure pathway, as identified in its Hazard Ranking System, by which hazardous substances may pose a threat to humans and/or the environment. Consequently, sites are evaluated on their known or potential impact to these pathways. The pathways evaluated are groundwater migration, surface water migration, soil exposure, and air migration.

5.1 Groundwater Pathway

Groundwater in the Rockford area is derived primarily from three different, though in many areas hydraulically connected, geologic units. These aquifers are in the Pleistocene glacial drift, comprised predominately of outwash sands and gravels in the Rock Bedrock Valley, in the Ordovician dolomites, the “shallow” bedrock encountered in the uplands overlooking the river valley and the Cambrian Sandstones, encountered beneath the dolomite in the uplands but comprising the bedrock surface beneath most of the outwash deposits in the deeper portions of the Rock Bedrock Valley. Groundwater from these three formations provides 100 percent of the supply for public, industrial, and domestic use in Winnebago County. Rockford Water Division is supplied by groundwater pumped from 32 wells located throughout the City of Rockford. The original wells in Rockford are pumped from the sand and gravel aquifer underlying the Rock River Valley. The shallow wells are typically 220-250 feet deep and are still in use. Modern wells, up to 1,500 feet deep, take water from a porous sandstone aquifer. There are currently 30 deep wells in the system. In general, groundwater flow is towards the Rock River.

The source of Rockford's drinking water comes from a blend of 32 deep and shallow groundwater wells. Three shallow groundwater samples (32-36 ft. deep) were collected during the SI from the Essex Wire property. Only one groundwater sample revealed contamination that was three times background.

The City of Rockford obtains drinking water from 32 municipal wells (http://www.rockfordil.gov/public-works/water-division/about-the-water-system.aspx). Twenty-four of these wells are located within 4 miles of the site (Plexux, p. 3-2). Two of these wells, are near the former Essex site. Well #3, in River Bluff Park, is 1,127 feet deep; W3ll #37 , at Huffman and Fulton, is 1,500 feet deep. Both wells are more than 3,000 feet from the site, to the northwest and southwest, respectively (45-Day Report, IESDA Incident Number 912562). Three private wells are located within 0.5 mile of the site. There is a private well approximately 1,265 feet southeast of the site drilled to a depth of 170 feet. The other two provate wells are 234 and 177 feet deep. These wells are approximately 1,770 feet northwest and 2,214 feet southwest of the property, respectively (Illinois EPA's Surface Water Assessment Program Assessment Tool). There are 910 known private, industrial, and commercial wells in the 4-mile area surrounding the Essex property. There are no wells within 0.25 mile of the site; between 0.25 and 0.5 mile are three wells; between 0.5 and 1 mile are eight wells; between 1 and 2 miles are 116 wells; between 2 and 3 miles are 272 wells; and between 3 and 4 miles are 501 wells (ISGS, 2004). At the time of this investigation, neither well has been impacted (2012 Water Quality Report, Rockford Water Division (http://www.rockfordil.gov/public-works/water-division/consumer-confidence-report.aspx).

Based on the current total county population (252,913) and the total number of houses (96,727), the average number of people per household is 2.6. Based on county population, there are approximately 2,040 private well users within 4 miles of the site. The number of persons using private wells between are depicted in the following table.

Distance from Site	Individuals utilizing Private Wells	Population utilizing Public Wells	Weighted (based on Table 3-12, 40 CFR PART 300, Appendix A to Part 300 — The Hazard Ranking System)
0-1/4	0	774	522
¼-1/2	8	3369	3235
½-1	21	12662	5229
1-2	302	30450	9479

2-3	707	47327	6846
3-4	1,002	49417	4302

(Figure 4, 4 Mile Radius Map)

5.2 Surface Water Pathway

No surface water samples were collected during this investigation. Most of the land area is under roof or covered by asphalt. Surface water runoff is directed to the storm water management system, which eventually flows to the Rock River. There are no known surface water intakes along the Rock River. The Rock River is considered a fishery. There are wetlands located along the Rock River, but it does not appear that these wetlands meet the definition of 40 CFR 230.3.

5.3 Soil Exposure

Operations and facilities surrounding the site include the Rockford Country Club golf course and residential homes to the east. To the west is the Chicago, Milwaukee, St. Paul & Pacific Railroad and beyond the tracks are residential homes. To the north of the site are commercial and residential areas. To the south are commercial properties (a vacant grocery store) along with two schools (Head Start North and Spectrum School). There is a residential neighborhood just to the west of the facility. These residential homes are located approximately 140 feet from the facility. At this time there are three businesses operating within the fenced area of the facility. Although the total number of onsite workers is unknown, it can be assumed that it is over 1 and fewer than 100.

Several soil samples collected during the Site Inspection were found to contain elevated levels of semi-volatiles. Benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene were found in low concentrations.

Complaints concerning past dumping actions of waste have been documented in the Illinois EPA BOL files, along with the documentation that #5 fuel oil contaminated soil was left underground. These sample results as well as the complaints and documentations should be further evaluated to determine the impact on the soil exposure pathway.

The geology of Winnebago County is characterized by unconsolidated Quaternary material unconformably underlain by a 2500-foot section of Paleozoic sedimentary rock. The Quaternary deposits

are composed of glaciofluvial sand and gravel, lacustrine silt and clay, eolian silt (loess), and till. The Paleozoic sedimentary rocks of the Cambrian and Ordovician age are interblended deposits of sandstone, shale and dolomite. The bedrock surface is unconformable with the Quaternary deposits because of erosion that formed the deeply incised and well developed pre-glacial Rock Bedrock Valley, which trends north-south through Winnebago County. The surface layer is black sandy loam and dark brown sandy loam. The upper subsoil is brown gravelly loamy sand and gravelly sand. The substratum is brown and yellowish brown gravelly sand and sand. In some areas, the gravel is absent. Permeability is moderately rapid in the subsoil and very rapid in the substratum.

5.4 Air Route

No air samples were collected at this time, but there are emission stacks and information which suggests that pollutants were discharged over the years of operation including VOCs, carbon monoxide, sulfur dioxide, nitrogen dioxide, and a small amount of particulates.

6.0 SUMMARY

The purpose of this investigation was to determine if the Essex Wire - Rockford site warrants further evaluation under CERCLA. The primary objective of a Site Inspection is to gather necessary information needed to evaluate the extent that a site presents a threat to human health and/or the environment

The Essex Wire site was selected to be investigated due to the past activities which have occurred at the site. This site was a former Department of Defense facility that manufactured shell casings. The site was then utilized as a wire manufacturing facility. These activities have the potential to release potentially harmful chemicals into the environment. Although some remediation activities have occurred on the site, the potential exists that contamination is still present.

Contaminated soil is a concern at the property due to the visual contamination present and the elevated levels of semi-volatiles and metals. Contaminated soil has the potential to affect on-site workers and the possibility of contaminating groundwater by leaching.

The City of Rockford obtains drinking water from 32 municipal wells (http://www.rockfordil.gov/public-works/water-division/about-the-water-system.aspx). Twenty-four of these wells are located within 4 miles of the site (Plexus, p. 3-2). Two of these wells, are near the former Essex site. Well #3, in River Bluff Park, is 1,127 feet deep; W3ll #37 , at Huffman and Fulton, is 1,500 feet deep. Both wells are more than 3,000 feet from the site, to the northwest and southwest, respectively (45-Day Report, IESDA Incident Number 912562). Three private wells are located within 0.5 mile of the site. There is a private well approximately 1,265 feet southeast of the site drilled to a depth of 170 feet. The other two private wells are 234 and 177 feet deep. These wells are approximately 1,770 feet northwest and 2,214 feet southwest of the property, respectively (Illinois EPA's Surface Water Assessment Program Assessment Tool). There are 910 known private, industrial, and commercial wells in the 4-mile area surrounding the Essex property. There are no wells within 0.25 mile of the site; between 0.25 and 0.5 mile are three wells; between 0.5 and 1 mile are eight wells; between 1 and 2 miles are 116 wells; between 2 and 3 miles are 272 wells; and between 3 and 4 miles are 501 wells (ISGS, 2004). At the time of this investigation, neither well has been impacted (2012 Water Quality Report, Rockford Water Division (http://www.rockfordil.gov/public-works/water-division/consumer-confidence-report.aspx). Groundwater collected from on-site revealed elevated levels of chromium, manganese, nickel and trichloroethene and cis-1,2-dichloroethene. Inorganics and trichloroethene in the groundwater were found to be three times background in one of the sampled wells (G202). Trichloroethene also exceeds the MCL value of 5 parts per billion. While there does not appear to be any impacts to the municipal wells serving the City of Rockford, the information presented suggests that a problem with contamination in on-site soil may still be an issue for the site.

Surface water runoff is directed to the storm water management system, which eventually flows to into the Rock River. At this time, the surface water pathway does not appear to be impacted.

Former wastes generated and used at the site could possibly include solvents and metals. Solvents were used at many industrial facilities to clean machines and parts. Due to the time period the plant was operating and the length of time the site has been used for manufacture of shell casings and wire (metals), it is possible that contamination has occurred.

7.0 REFERENCES

Illinois Environmental Protection Agency, Bureau of Land files, LPC 2010300060 Essex Wire.

Source Water Assessment Program. **http://kleene.er.usgs.gov/arcims/swap/index.htm**

Environmental Contractors of Illinois, Inc. Limited Phase II Soil Boring and Groundwater Investigation, Essex Wire, 2816 N. Main Street, Rockford, Illinois. July 5, 2007.

Environmental Contractors of Illinois, Inc. Phase I Environmental Site Assessment, Essex Wire, 2816 N. Main Street, Rockford, Illinois. March 5, 2007.

Plexus Scientific Corporation. Preliminary Assessment, Former Rockford Ordnance Plant, Rockford, Winnebago County, Illinois. June 2005.

Environmental Contractors of Illinois, Inc. Soil Boring Report, Essex Group Inc. 2816 North Main Street, Rockford, Illinois, 61103. August 1993.

Figure 1
Site Location Map

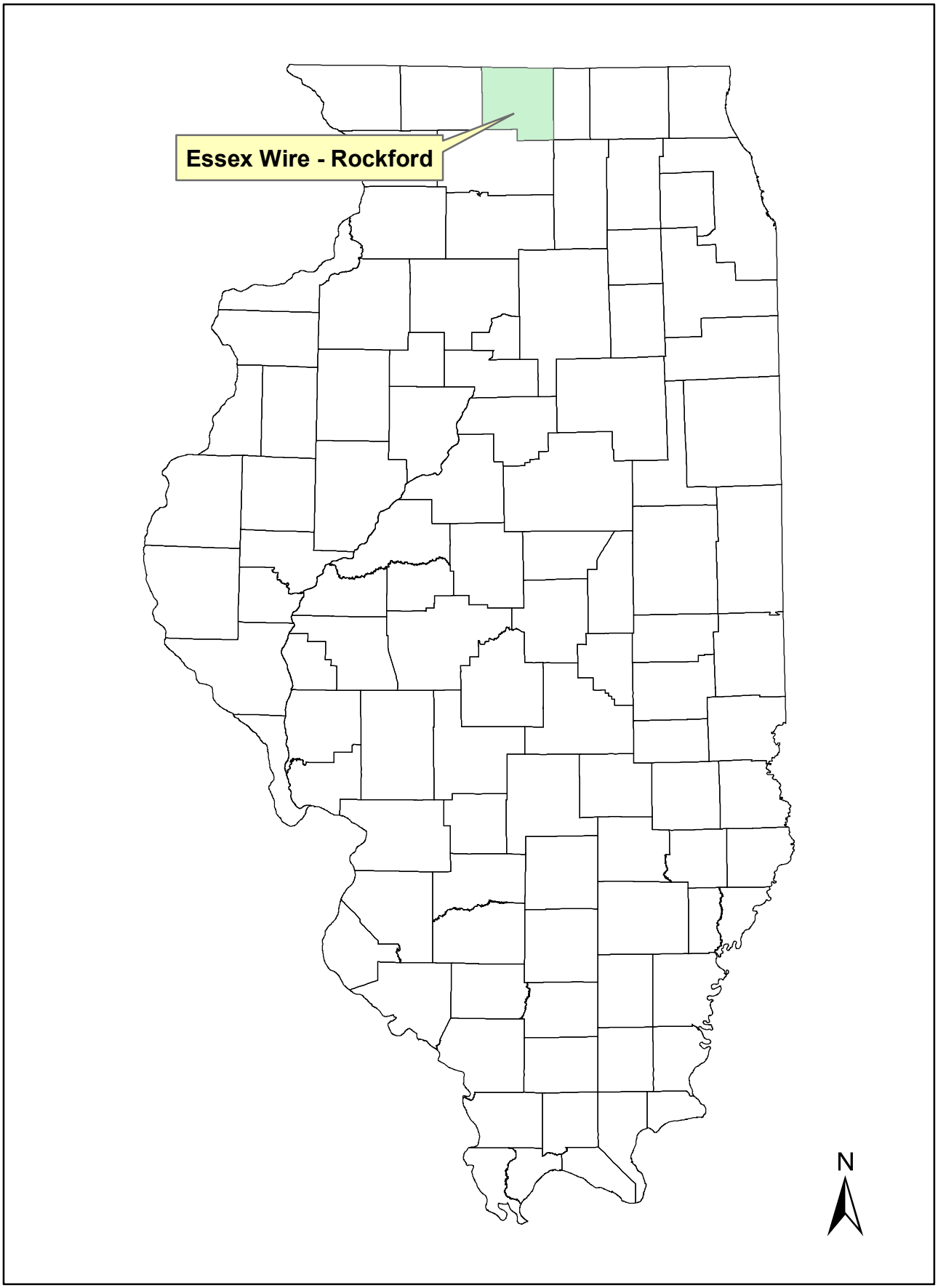

Figure 2: Site Area Map

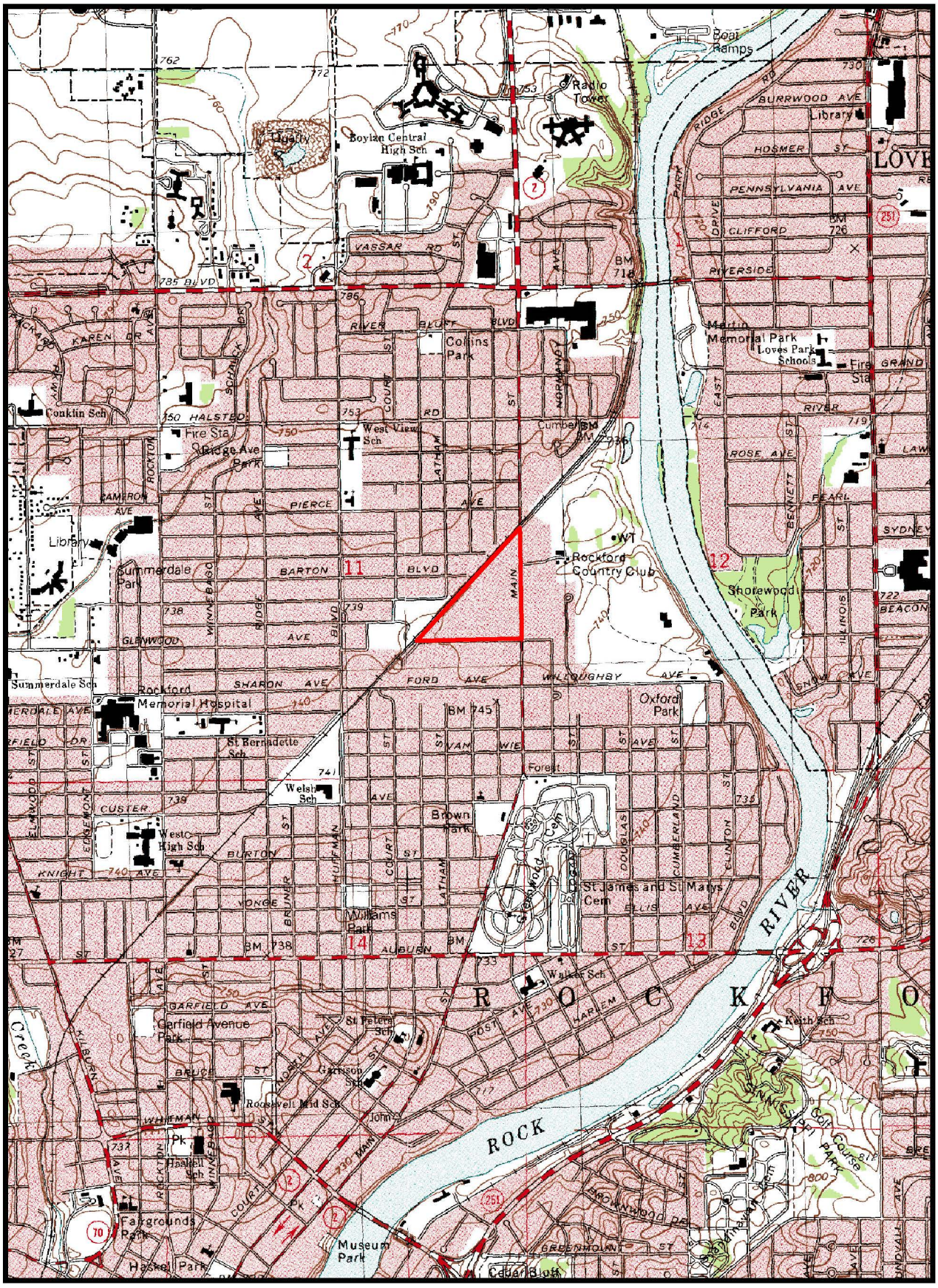

Figure 3: Site Aerial Map

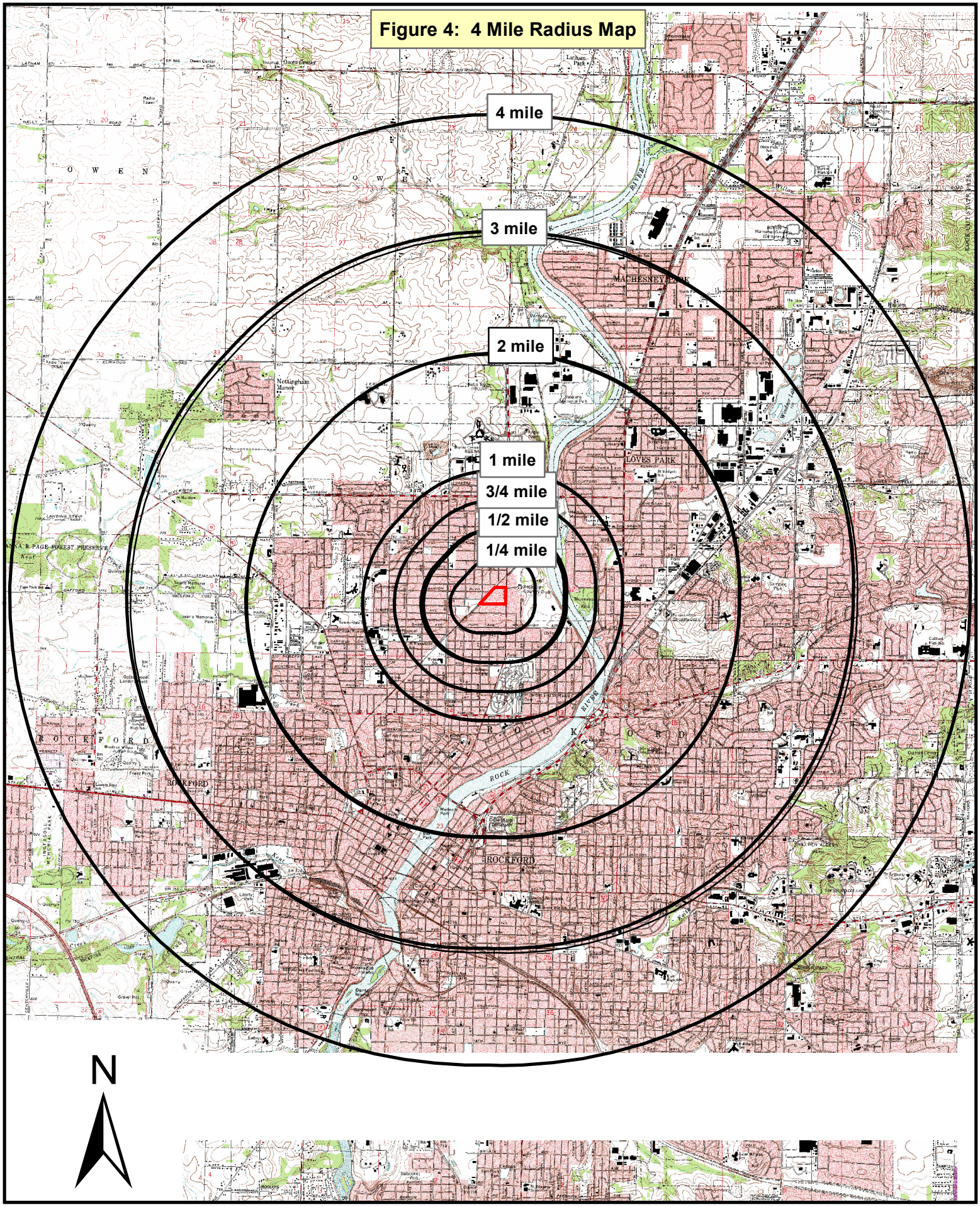
Figure 4: 4 Mile Radius Map
4 mile
3 mile
2 mile
1 mile
3/4 mile
1/2 mile
1/4 mile
N
Miles
0 0.25 0.5 1 1.5 2

Figure 5: Soil Sample Map

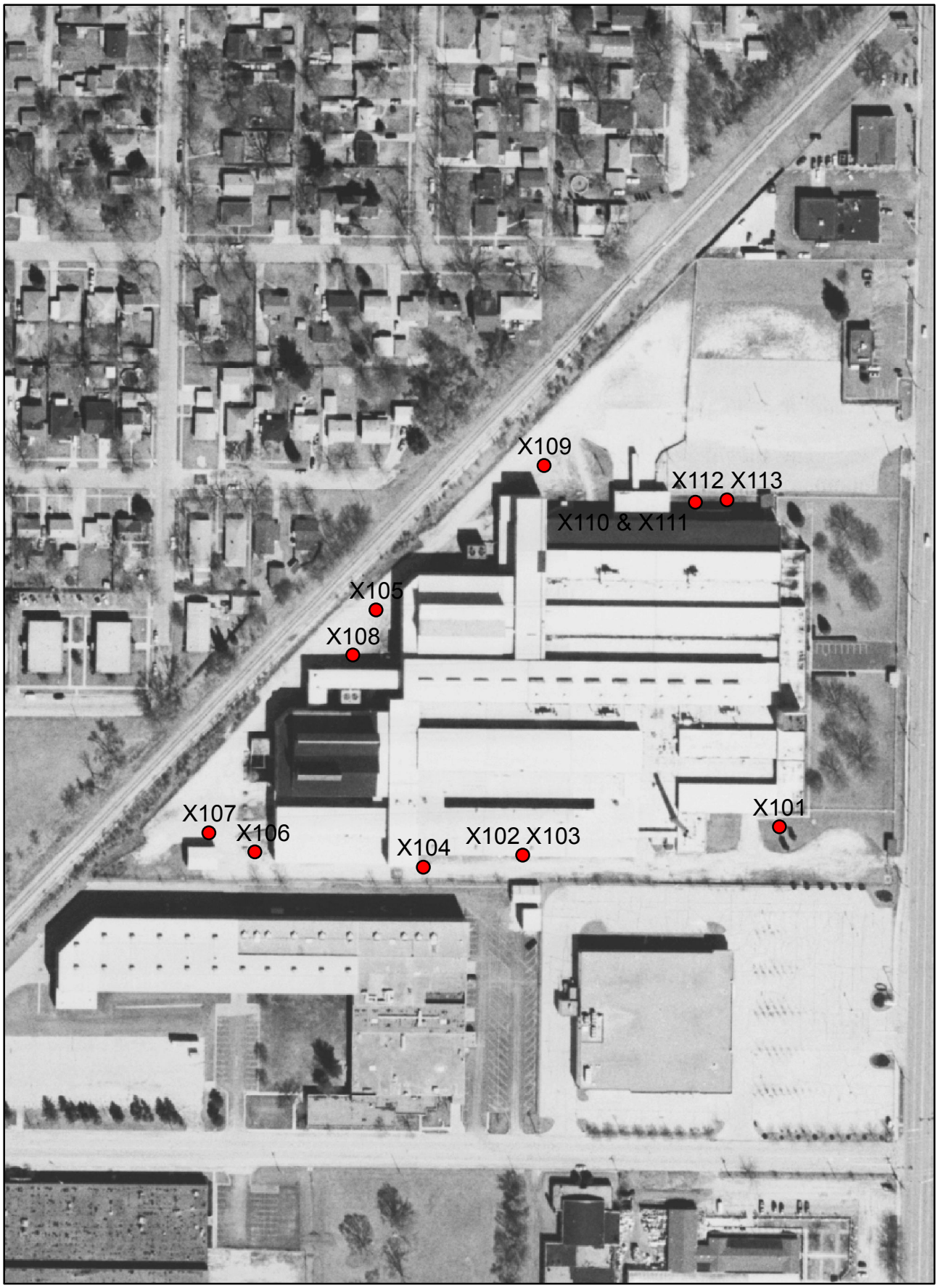

Figure 6: GW Location Map

Figure 7: XRF Locations

TABLE 1
Sample Descriptions

Sample	Location	Depth	Description
X101	Southeast corner of property	0-6 inches	dark brown sand
X102/X103	Southside of building	0-6 inches	Brown sandy loam
X104	SE Corner of taller building, located on south side	0-6 inches	Silty sandy loam
X105	Northwest side of property, near the area of the Hot Forge	0-6 inches	dark brown sand
X106	SW corner of building, near machine shop	0-6 inches	fill material and sand
X107	North of Flammable Storage, SW corner of property	3-4 ft	mixed sand and gravel, elevated XRF (chromium) slight pink tinge
X108	West side of building, near hot forge, just north of garage door	9 ft	sand, elevated PID at 9 ft.
X109	Northwest area of the property	0-6 inches	dark brown silty sand (background)
X110	NW corner of chip house	0-6 inches	fill material consisting of gravel and sand, elevated PID
X111	NW corner of chip house	7 ft	black/dark gray sandy silt, elevated PID
X112	NE corner of chip house	0-6 inches	fill material consisting of gravel and sand, elevated PID
X113	NE corner of chip house	5-6 ft	gray silty sand, elevated PID
G201	SE corner of building	32-36 ft	
G202	SE Corner of taller building, located on south side	32-36 ft	
G203/G204	Northwest area of the property	32-36 ft	(background)

Table 2
Key Soil Samples
Organics

Sample Number :			E0AA0																					
Sampling Location :	x109		X101		X102		X103		X104		X105		X106		X107		X108		X110		X111		X112		X113	
Matrix :	soil		soil		soil		soil		soil		soil		soil		soil		soil		soil		soil		soil		soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :																										
Time Sampled :																										
%Moisture :			N/A		N/A		N/A		N/A		N/A															
pH :																										
Dilution Factor :			1		1		1		1		1															
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Acetone	8.7	U													3.8	J	4.4	J			69				54	
Carbon disulfide	4.3	U																			6.8					
cis-1,2-Dichloroethene	4.3	U															1	J			21					
2-Butanone	8.7	U																			33				13	
Trichloroethene	4.3	U	0.9	J																	930	J			1.6	J
Tetrachloroethene	4.3	U	2.1	J									3.6	J	1.7	J			1.2	J	53	J			18	J
Ethylbenzene	4.3	U																			6	J				
o-Xylene	4.3	U																			11	J			1.3	J
m,p-Xylene	4.3	U	1.2	J																	20	J			1	J

Sample Number :			E0AA0		E0AA4		E0AA5		E0AA6																	
Sampling Location :	x109		X101		X102		X103		X104		X105		X106		X107		X108		X110		X111		X112		X113	
Matrix :	soil		soil		soil		soil		soil		soil		soil		soil		soil		soil		soil		soil		soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :																										
Time Sampled :																										
%Moisture :			N/A		N/A		N/A		N/A		N/A															
pH :																										
Dilution Factor :			1		1		1		1		1															
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dimethylphthalate	390		350		12000		12000		340		390		340		380	J	400		280		380		340		270	
2,6-Dinitrotoluene	180	U																								
Acenaphthylene	180	U																								
3-Nitroaniline	360	U																								
Acenaphthene	180	U	500		3400	J			330												130	J			79	J
2,4-Dinitrophenol	360	U																								
4-Nitrophenol	360	U																								
Dibenzofuran	180	U	190						160	J											93	J				
2,4-Dinitrotoluene	180	U																								
Diethylphthalate	180	U																								
Fluorene	180	U	440		2700	J			270				150	J							150	J				
4-Chlorophenyl-phenyleth	180	U											140	J												
4-Nitroaniline	360	U																								
4,6-Dinitro-2-methylphenc	360	U																								
N-Nitrosodiphenylamine	180	U																								
1,2,4,5-Tetrachlorobenzer	180	U																								
4-Bromophenyl-phenyleth	180	U																								
Hexachlorobenzene	180	U																								
Atrazine	180	U																								
Pentachlorophenol	360	U																								
Phenanthrene	180	U	4400	J	58000		35000		3400	J	410		72	J	200		75	J	140	J	650				150	J
Anthracene	180	U	110		7000		4700	J	630																	
Carbazole	180	U	850		8600		5100		590		72	J														
Di-n-butylphthalate	180	U																								
Fluoranthene	180	U	4800	J	77000		72000		3900	J	1100		150	J	410		160	J	330		280				170	J
Pyrene	180	U	4500	J	67000		64000	J	3700	J	930		140	J	350		160	J	310		260				300	
Butylbenzylphthalate	180	U																								
3,3'-Dichlorobenzidine	180	U																								
Benzo(a)anthracene	180	U	2700		30000		31000		2100		430				160	J			160	J						
Chrysene	180	U	3200	J	41000		43000		2700		630		89	J	210		150	J	210							
Bis(2-ethylhexyl)phthalate	180	U	150	J											140	J										
Di-n-octylphthalate	180	U																								
Benzo(b)fluoranthene	180	U	3700	J	47000	J	53000		3200	J	630		130	J	270		110	J	290							
Benzo(k)fluoranthene	180	U	1300		19000		17000		1200		220				75	J			97	J						
Benzo(a)pyrene	180	U	2600		31000		33000		2200		380		76	J	170	J			190							
Indeno(1,2,3-cd)pyrene	180	U	2100		25000		28000		1900		260		87	J	140	J			180							
Dibenzo(a,h)anthracene	180	U	420		4400	J	5800		420																	
Benzo(g,h,i)perylene	180	U	2000		23000		25000		1800		250		110	J	180	J			230							
2,3,4,6-Tetrachlorophenol	180	U																								

Table 3
Key Inorganic Results

	BG																									
Sample Number :																										
Sampling Location	X109			X101		X102		X103		X104		X105		X106		X107		X108		X110		X111		X112		X113	
Matrix :	Soil			Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Units :	mg/Kg			mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :																										
Time Sampled :																										
%Solids :																										
Dilution Factor :																										
ANALYTE	Result	Flag		Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	8110		24330	6090		2910		2890		6690		2980		3710		2710		1480		1600		5080		1930		4960	
ANTIMONY	0.25	J	2.5	0.19	J	0.17	J	0.24	J	0.4	J	0.17	J	0.21	J	0.17	J	4.4	UJ	3.8	J	5.1	UJ	0.5	J	0.17	J
ARSENIC	3.9		11.7	3.1		2.5		2.6		5.1		1.9		2.8		1.5		0.66	J	15.7		2.3		3.7		2	
BARIUM	105		315	69.8		26.2		25.4		60		25.5		33.9		20.7		11	J	40.2		58.1		16.6		42	
BERYLLIUM	0.46		1.38	0.31	J	0.24	J	0.19	J	0.39	J	0.23	J	0.24	J	0.11	J	0.11	J	0.4	U	0.29	J	0.16	J	0.24	J
CADMIUM	0.18	J	1.8	0.26	J	0.64	J	0.59	J	0.24	J	0.15	J	0.28	J	0.15	J	0.055	J	2.6	J	0.2	J	0.37	J	0.098	J
CALCIUM	4550		13650	3850		111000		101000		106000		50400		79600		14300		8970		145000		8070		99400		1480	
CHROMIUM	10.8		32.4	9.4		7.9		7		10.5		8.5		7.9		6.9		4		20.2		21.4		6.2		8.4	
COBALT	4.3	J	43	3.8	J	2.3	J	2.1	J	4	J	2.2	J	3	J	2.2	J	1	J	6.1	J	6.3	J	2.2	J	3.4	J
COPPER	5.2		15.6	9.9		68.3		53.8		32.1		28.2		211		159		35.2		96.3		9		20.8		4.7	
IRON	10700		32100	8950		5850		5780		11100		5800		7200		5850		3040		94800		8680		9770		6750	
LEAD	9.4	J	94	8.1	J	56.8	J	42.7	J	12.4	J	8.5	J	17.9	J	12.5	J	2.4	J	98	J	8.8	J	25.7	J	4.4	J
MAGNESIUM	3100		9300	2500		58700		52300		38300		28500		56000		7490		5150		79300		4430		50700		1320	
MANGANESE	367	J	3670	316	J	253	J	239	J	396	J	206	J	303	J	166	J	97	J	910	J	340	J	236	J	158	J
MERCURY	0.017	J	0.17	0.013	J	0.015	J	0.016	J	0.16	J	0.088	U	0.016	J	0.0076	J	0.097	U	0.03	J	0.011	J	0.028	J	0.11	U
NICKEL	7.1	J	71	7	J	9.5	J	8.3	J	9.2	J	6.9	J	8.8	J	5.3	J	2.9	J	22.9	J	10	J	5.6	J	6.5	J
POTASSIUM	410		1230	298	J	197	J	177	J	500		181	J	294	J	101	J	17.1	J	125	J	273	J	163	J	237	J
SELENIUM	1.8	J	18	1.4	J	1.2	J	0.99	J	1.3	J	1.2	J	1	J	0.73	J	0.64	J	10.8		1.4	J	1.6	J	1.2	J
SILVER	0.81		2.43	0.67	J	0.49	J	0.44	J	0.74	J	0.43	J	0.53	J	0.49	J	0.28	J	6.4		0.66	J	0.78		0.54	J
SODIUM	138	J	1380	386	J	49.7	J	49.6	J	264	J	67.9	J	77.9	J	48.1	J	40	J	117	J	423	U	39.8	J	55	J
THALLIUM	2	U	6	2	U	1.8	U	1.9	U	2	U	1.9	U	2	U	1.8	U	1.8	U	2	U	2.1	U	2	U	2	U
VANADIUM	21.5		64.5	17.2		16.6		15.1		20.1		10.8		13.1		11.8		6.1		11.4		15.5		10.1		13.9	
ZINC	30.5	J	305	29.7	J	117	J	91.3	J	32.3	J	22.8	J	38.4	J	30.3	J	10.4	J	153	J	30.1	J	34.4	J	20.5	J
CYANIDE	0.55	U	1.65	0.54	U	0.52	U	0.52	U	0.53	U	0.52	U	0.53	U	0.52	U	0.52	U	0.52	U	0.57	U	0.52	U	0.57	U

Table 4
Organic Water Results

Sample Number :					Background		Background Dup	
Sampling Location :	G201		G202		G203		G204	
Matrix :	water		water		water		water	
Units :	ug/L		ug/L		ug/L		ug/L	
Date Sampled :								
Time Sampled :								
%Solids :								
Dilution Factor :								
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200	U	3290		791		200	U
ANTIMONY	60	U	60	U	60	U	60	U
ARSENIC	10	U	3	J	10	U	10	U
BARIUM	200	U	200	U	200	U	200	U
BERYLLIUM	5	U	5	U	5	U	5	U
CADMIUM	5	U	5	U	5	U	5	U
CALCIUM	107000		124000		108000		101000	
CHROMIUM	10	U	48.5		4.7	J	10	U
COBALT	50	U	4.8	J	1.2	J	50	U
COPPER	25	U	25	U	25	U	25	U
IRON	258		6630		2800		507	
LEAD	10	U	7	J	2.5	J	10	U
MAGNESIUM	45100		51700		45700		43000	
MANGANESE	118		445		121		49.7	
MERCURY	0.2	U	0.2	U	0.2	U	0.2	U
NICKEL	1.8	J	34	J	2.8	J	1.6	J
POTASSIUM	732	J	1720	J	485	J	489	J
SELENIUM	35	U	35	U	35	U	35	U
SILVER	10	U	10	U	10	U	10	U
SODIUM	54600		62100		53400		54200	
THALLIUM	25	U	25	U	25	U	25	U
VANADIUM	50	U	9.1	J	6.4	J	50	U
ZINC	60	U	29.4	J	23.3	J	60	U
CYANIDE	10	U	4.3	J	10	U	10	U

Trichloroethene	2.2	J	15		5	U	5	U
cis-1,2-Dichloroethene			1.8	J	5	U	5	U

Table 5
XRF Results

Date		Reading	Ti	Ti +/-	Cr	Cr +/-	Mn	Mn +/-	Fe	Fe +/-	Co	Co +/-	Cu	Cu +/-	Zn	Zn +/-	As	As +/-	Rb	Rb +/-	Sr	Sr +/-	Zr	Zr +/-	Pb	Pb +/-
30-Sep-13	South Side of Bldg	19	1293	372	<LOD	159	135	41	7477	198	<LOD	156	<LOD	39	107	11	<LOD	18	16	2	63	4	44	4	50	7
30-Sep-13	South Side of Bldg	20	<LOD	1065	<LOD	145	190	43	5811	169	<LOD	145	<LOD	38	118	11	<LOD	15	15	2	54	4	25	4	32	6
30-Sep-13	South Side of Bldg	21	<LOD	1149	<LOD	167	192	44	6638	182	<LOD	149	73	15	54	9	<LOD	16	7	2	51	4	63	4	46	7
30-Sep-13	South Side of Bldg	22	<LOD	1063	<LOD	158	338	51	4728	152	<LOD	130	156	18	60	9	<LOD	13	10	2	53	4	26	4	<LOD	15
30-Sep-13	South Side of Bldg	23	<LOD	1426	<LOD	209	274	60	11068	310	<LOD	233	178	22	147	15	<LOD	50	16	3	63	5	47	5	448	21
30-Sep-13	South Side of Bldg	24	<LOD	1216	<LOD	179	236	50	4403	157	<LOD	138	173	21	46	9	<LOD	14	<LOD	6	47	4	23	4	20	6
30-Sep-13	South Side of Bldg	25	<LOD	1133	<LOD	174	242	48	3911	140	<LOD	134	90	17	79	10	<LOD	12	7	2	58	4	22	4	<LOD	15
30-Sep-13	South Side of Bldg	26	<LOD	1145	<LOD	191	249	52	5340	177	<LOD	150	167	21	48	9	<LOD	15	6	2	49	4	35	4	30	6
30-Sep-13	South Side of Bldg	27	<LOD	1111	<LOD	157	247	47	5627	169	<LOD	149	101	16	129	12	<LOD	19	<LOD	6	28	3	15	3	55	7
30-Sep-13	South Side of Bldg	28	1689	434	<LOD	193	467	65	11906	304	<LOD	228	85	17	115	12	<LOD	17	27	3	61	4	102	5	37	7
2-Oct-13	Along Western Fenceline	26	<LOD	1088	<LOD	171	<LOD	114	3550	125	<LOD	112	<LOD	36	30	7	<LOD	12	<LOD	5	42	3	<LOD	10	<LOD	14
2-Oct-13	Along Western Fenceline	27	<LOD	1113	<LOD	160	244	47	3430	127	<LOD	115	<LOD	42	67	10	<LOD	14	<LOD	5	47	4	12	4	19	5
2-Oct-13	Along Western Fenceline	28	<LOD	1007	<LOD	165	147	40	4455	143	<LOD	124	<LOD	36	34	7	<LOD	12	8	2	58	4	<LOD	10	15	5
2-Oct-13	Along Western Fenceline	29	<LOD	1141	<LOD	187	216	48	9067	233	<LOD	182	<LOD	41	87	10	<LOD	15	23	3	60	4	57	4	31	6
2-Oct-13	Along Western Fenceline	30	1680	425	<LOD	200	262	54	16165	362	<LOD	237	90	16	76	10	<LOD	15	31	3	63	4	88	5	24	6
2-Oct-13	Along Western Fenceline	31	1843	447	<LOD	200	302	56	17521	385	347	87	59	15	119	12	<LOD	17	46	3	74	4	168	6	46	7
2-Oct-13	Along Western Fenceline	32	<LOD	1037	<LOD	147	262	47	7668	200	<LOD	159	99	16	82	10	<LOD	14	15	2	55	4	47	4	23	5
2-Oct-13	Along Western Fenceline	33	<LOD	1079	<LOD	179	132	42	5010	161	<LOD	142	<LOD	41	71	10	<LOD	15	11	2	62	4	30	4	27	6
2-Oct-13	Along Western Fenceline	34	<LOD	1031	<LOD	154	162	41	4266	140	<LOD	131	45	14	193	14	<LOD	13	8	2	57	4	16	4	<LOD	15
2-Oct-13	Along Western Fenceline	35	<LOD	944	<LOD	142	195	43	5017	154	<LOD	140	46	14	121	12	<LOD	14	12	2	48	3	41	4	24	6
2-Oct-13	Along Western Fenceline	36	1209	388	<LOD	158	209	46	6406	188	<LOD	147	79	16	66	10	<LOD	12	10	2	65	4	15	4	<LOD	13
2-Oct-13	Along Western Fenceline	37	<LOD	1078	<LOD	155	211	45	5575	166	<LOD	136	<LOD	41	35	8	<LOD	12	11	2	47	3	42	4	<LOD	15
2-Oct-13	Along Western Fenceline	38	<LOD	1137	<LOD	181	159	46	4902	168	<LOD	131	<LOD	45	46	9	<LOD	13	<LOD	6	44	4	<LOD	11	<LOD	16
2-Oct-13	Along Western Fenceline	39	<LOD	1016	<LOD	152	136	40	4319	144	<LOD	125	111	17	61	9	<LOD	15	10	2	48	4	11	3	16	5
2-Oct-13	Along Western Fenceline	40	<LOD	1046	<LOD	168	147	42	3655	133	<LOD	114	255	22	150	14	13	4	7	2	38	3	11	4	<LOD	13
2-Oct-13	Along Western Fenceline	41	<LOD	1335	287	84	235	62	24537	540	356	107	854	40	871	35	81	22	8	2	47	4	30	4	854	29
2-Oct-13	Along Western Fenceline	42	<LOD	1135	<LOD	192	331	53	7867	209	<LOD	166	390	25	88	11	<LOD	15	21	3	54	4	45	4	28	6
2-Oct-13	Along Western Fenceline	43	1365	409	<LOD	186	178	45	5083	163	<LOD	140	472	29	63	11	<LOD	12	<LOD	6	45	4	18	4	<LOD	16
2-Oct-13	Along Western Fenceline	44	1451	397	<LOD	164	321	51	12588	280	<LOD	196	238	20	124	12	<LOD	17	34	3	72	4	124	5	55	7
2-Oct-13	Along Western Fenceline	45	1736	452	<LOD	180	339	58	11519	294	<LOD	207	117	18	130	13	<LOD	20	32	3	71	4	143	6	54	8
2-Oct-13	Along Western Fenceline	46	<LOD	1213	<LOD	176	276	52	11331	276	<LOD	202	2204	65	251	19	<LOD	24	7	2	47	4	29	4	105	9
2-Oct-13	Along Western Fenceline	47	<LOD	1193	<LOD	170	170	47	8853	238	<LOD	182	1139	45	291	20	<LOD	22	10	2	60	4	27	4	83	9
2-Oct-13	Along Western Fenceline	48	<LOD	1196	<LOD	159	289	51	3834	143	<LOD	124	372	27	57	10	<LOD	13	6	2	46	4	<LOD	11	<LOD	15